A Comparative Study of Efficacy of Amlodipine Vs Telmisartan in Stage I Hypertension in Tribal Population of Northern Telangana.

1) Dr.Devakar N, 2) Dr. Pratyusha Sinha, 3)Dr. Devarapalli Noothanasree, 4) Dr. K. Laxmipathi, 5) Dr. K. Bhanu Prakash

Final Year Post Graduate, M.D Pharmacology, Department Of Pharmacology, Rajiv Gandhi Institute Ofmedical Sciences, Adilabad, Telangana.
Final Year Post Graduate, M.D Pharmacology, Department Of Pharmacology, Rajiv Gandhi Institute Ofmedical Sciences , Adilabad,Telangana .
Final Year Post Graduate, M.D Pharmacology, Department Of Pharmacology, Rajiv Gandhi Institute Ofmedical Sciences Adilabad, Telangana .
Professor & Hod, Department Of Pharmacology, Kakatiya Medical College, Warangal, Telangana.
Professor&Hod, Department Of Pharmacology, Rims College Adilabad, Telangana .

I.   INTRODUCTION

- Hypertension exerts a substantial public health burden on cardiovascular health status and healthcare systems in India.
- HTN is directly responsible for 57% of all stroke deaths and 24% of all coronary heart disease (CHD) deaths in India[1].
- Antihypertensive drugs can be applied to provide effective blood pressure control while minimizing side effects.[2]
- Amlodipine, is a dihydropyridine CCB that binds to a transmembrane site on L-type calcium channels within cardiac and smooth muscle cells, inhibiting calcium ion influx with downstream disruption of myosin–actin interactions to reduce muscle contractility.[3]
- Telmisartan is highly selective for the angiotensin II type 1 receptor (AT1) includes vasoconstriction; activation of the protein kinase C, NADPH oxidase, Janus kinase/signal transducer and activator of transcription cascade; release of catecholamines from the adrenal medulla; aldosterone secretion; and cell proliferation.[5]
- Besides significant reduction in BP, telmisartan also have beneficial effects on various metabolic parameters, where amlodipine is not effective. The effects of telmisartan on the metabolic profile is additional attribute beyond its established antihypertensive effect.[6]

STUDY METHODOLOGY
INCLUSION CRITERIA
- Age more than 25 years and less than 55 years both males and females .
- Blood pressure of ≥140/90 mmHg.

EXCLUSION CRITERIA
- Pregnant women and lactating mothers.
- Hypertension with other cardiac , renal, liver and other comorbidities
- Drug allergies.

- **STUDY DESIGN**: Prospective randomized open- labelled comparative study.
- **STUDY SETTING**: General Medicine OPD, RIMS Adilabad.
- **STUDY DURATION**: 6 months.
- **SAMPLE SIZE**: 60.

30 subjects will receive oral 5mg Amlodipine.
30 subjects will receive oral 20mg Telmisartan.

STUDY PROCEDURE
1. The study was conducted after approval from Institutional Ethical Committee & written informed consent will be taken from participants before conducting the study.
2. Patients presenting to General Medicine OPD of RIMS, Adilabad will be clinically tested for diagnosis of Stage I Hypertension.
3. Each patient will be subjected to the detailed medical history and physical examination.

---

4. Measurements of systolic and diastolic BP were performed manually with a calibrated sphygmomanometer in supine position. Three measurements of BP were taken (each 5 minutes apart) and average value will be noted.
5. Blood samples to be tested for blood sugar, renal function, liver function and lipid profile.
6. Patients will be grouped by randomization technique according to random sampling method into 2 study groups:
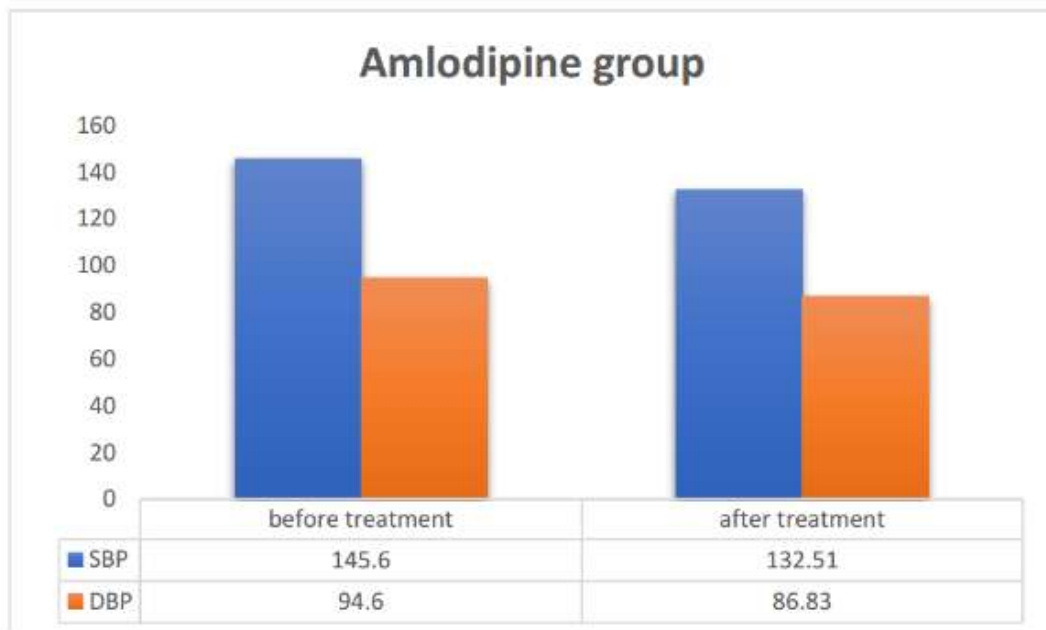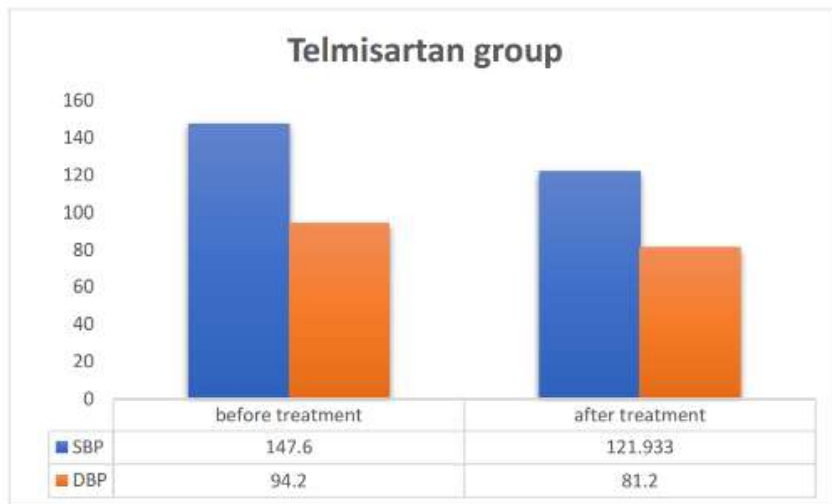
Group 1: Will receive oral 5mg Amlodipine.

Group 2: Will receive oral 20mg Telmisartan.
7. Follow up will be done after every month for 6 consecutive months.

DATA ANALYSIS- Data will be entered into Microsoft Excel and analysis will be done using the statistical package for social sciences (SPSS).
- Mean, Standard Deviation(SD), proportion will be measured.
- Student 't' test will be used wherever applicable.

II.   STATISTICAL ANALYSIS

Telmisartan group

	before treatment	after treatment
SBP	147.6	121.933
DBP	94.2	81.2

Amlodipine group

	before treatment	after treatment
SBP	145.6	132.51
DBP	94.6	86.83

III. RESULTS & CONCLUSION

- The mean value of systolic BP in telmisartan group decreased from baseline by 17.43% and 13.79% in diastolic BP.
- On comparing with amlodipine, telmisartan reduced mean systolic BP significantly more by 8.42% and 5.59% in diastolic BP.

CONCLUSION:

- Besides significant reduction in BP, telmisartan also have beneficial effects on various metabolic parameters, where amlodipine is not effective. The effects of telmisartan on the metabolic profile is additional attribute beyond its established antihypertensive effect.

REFRENCES

[1]. Anchala R, Kannuri NK, Pant H, Khan H, Franco OH, Di Angelantonio E, Prabhakaran D. Hypertension in India: a systematic review and meta- analysis of prevalence, awareness, and control of hypertension. Journal of hypertension. 2014 Jun 1;32(6):1170-7.

[2]. Billecke SS, Marcovitz PA. Long-term safety and efficacy of telmisartan/amlodipine single pill combination in the treatment of hypertension. Vascular Health and Risk Management. 2013 Mar 16:95-104.

[3]. Effectiveness of Amlodipine on Blood Pressure Control in Hypertensive Patients in India: A Real-World, Retrospective Study from Electronic Medical Records.

[4]. Fares H, DiNicolantonio JJ, O'Keefe JH, Lavie CJ. Amlodipine in hypertension: a first-line agent with efficacy for improving blood pressure and patient outcomes. Open heart. 2016 Sep 1;3(2):e000473.

[5]. Khan MY, Pandit S, Abdulkutty J, Navasundi G, Hazra PK, Phadke U, Mane A, Mehta S, Shah S. Effectiveness of telmisartan on blood pressure control in hypertensive patients in India: A real-world retrospective study from electronic medical records. Cardiology and Therapy. 2021 Jun;10:255-69.

[6]. Ramakrishnan S, Ingole S, Dey A, Jain R. Management of hypertension: Insights into prescribing behavior with focus on angiotensin receptor blockers. J Pract Cardiovasc Sci. 2017;3:22–27.

[7]. Tripathi N, Bohara S, Singh RR, Kumar A, Dhoan P, Uraiya D. Comparative study of telmisartan and amlodipine to assess the effect on blood pressure, lipid profile and blood glucose level in Indian hypertensive patients. Int J Med Res Rev. 2016;4:1693-701.

[8]. Sawant R, Suryawanshi S, Jadhav M, Barkate H, Bhushan S, Rane T. A Prospective, Randomized Open-Label Study for Assessment of Antihypertensive Effect of Telmisartan Versus Cilnidipine Using Ambulatory Blood Pressure Monitoring (START ABPM Study). Cardiology Research. 2023 Jun;14(3):211.